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THE PROBLEM ATTACK IN TEACHING

H. B. WILSON

Superintendent of Schools, Topeka, Kansas

The indispensable prerequisite to effective work is that the matter in hand shall be recognized and attacked as a problem. One thinks seriously and works energetically only when an obstacle or a difficulty appears, raising a problem.

The most ordinary experiences of life illustrate clearly the foregoing fundamental truth. A few months ago a good friend of mine who had been operating his new automobile for about two months took me for a drive of several miles in the country and exhibited great delight in showing the smoothness with which his new machine operated. We parked the car for an hour's visit; it was operating so smoothly that it seemed impossible for it to get out of repair. When the time came to start home, it refused to budge. For the first time he realized that his fine new machine could present a problem. I inquired the difficulty. He hastened to respond that he hadn't the least idea. Various drivers of passing machines offered assistance until finally, after one had busied himself for several minutes and the starter was touched, the car was ready for action again. The combined wisdom of all who had attempted to treat the machine pointed to the conclusion that something was wrong with the electrical equipment. Just what was wrong no one knew; but my friend assured me that he would immediately proceed to familiarize himself with the electrical equipment and with the possible types of difficulty which might appear in its successful operation.

The practiced cabinet-maker does nothing in the presence of all his materials, with all his fine skill, until a job appears to be turned out. Meeting the requirements of the job presents a definite, concrete problem upon which he goes to work with all his accumulated art, persisting until the task is completed. The

lawyer, with all his fine array of volumes, does little or nothing with them until a problem presents itself in concrete form as a case. Similarly, the physician makes little or no use of his extensive library until a patient is discovered presenting certain phenomena which baffle him. Then his library comes into use in his effort to solve the problem presented by the case.

In most schools relatively little effort is put forth by the pupils, because the major portion of schoolwork is attempted without the children having met and clearly conceived a problem which is of vital importance to them and therefore worthy of solution. In most of their schoolwork children are concerned with the use of books, although the number of exceptions to this practice is rapidly increasing. In their use of these books the main problem confronting the children is merely to see what the book says. Before going to the books the children have not met a question which they are concerned to solve. They simply go by direction of the teacher's assignment to the next few paragraphs or pages, or the next chapter of the book, just because that assignment was made. Attention is therefore concentrated on trying to find out and remember what the book says. Ordinarily the study is not fundamental enough so that the children look behind what the book says to see the problem which the author is trying to solve, if perchance he had one in mind.

It is very clear that such procedure is wasteful of time and energy and is calculated to establish habits of musing and browsing over books rather than concentrated, thoughtful use of them. In the light of our principle as stated above and of our knowledge of its operation in the ordinary concrete situations of life, it is clear that pupils should go to the pages or chapters to which they are directed with significant problems and vital questions in mind. The problems should not only be significant and vital in the abstract sense, but they should be personally so to the pupils concerned. The pupil who goes to a textbook assignment should go with as much concern and anxiety to read it as animates the child who is trying to read the directions accompanying the new electrical toy which he found in his stocking on Christmas morning.

Someone has pointed out that perhaps the reason why students who have succeeded indifferently in the high school and liberal arts college awaken and begin to make good progress in vocational and professional courses is because they are working on topics, questions, and problems which they clearly see are related to the careers for which they are preparing. In a normal school a prospective teacher tries to master the fundamentals underlying the problem of how to make a program, how to teach beginning reading, how to discipline a school. In a school of commerce the prospective business man tries to learn how to write attractive, interesting letters, how to keep correctly a set of books, how to study the markets, that his investments may be safely placed. Similarly, students of dentistry, medicine, law, and the ministry are at work on problems definitely related to the successful pursuit of the career each has projected, following the completion of a course of training.

There is evident need of so organizing and directing the work and energy that pupils in the public schools, who are less mature, and who are therefore in greater need of the stimulus of definite, concrete problems, may find themselves in the various exercises and lessons of the school and in preparation for the same, at work in an effort to answer questions about which they are concerned, and to solve problems of vital importance to them. These problems should be as definite and as provocative of interest and anxiety as is the problem of the little child who thinks he must write a letter to Santa Claus if he wants a Christmas present. Confronted with that problem, the child hunts help. He inquires how to begin his letter, what to say, how to spell, and so on. Successful teachers are rapidly learning how to guide and direct the work of children in such way that the work they do is centered about the solution of problems and the answering of questions which are of vital concern to the pupils engaged.

From the standpoint of their origin, roughly speaking, there are two types of problems—those originating outside of any particular subject of study and those originating within the subjects of study. Each may be briefly and concretely illustrated.

A problem originating outside of a subject of study may be simple, or large and complicated. The latter type may be chosen for illustration here, as it embodies all the possibilities of a small problem and additional ones. A little over a year ago the faculty and students of the normal school at Kirksville, Missouri, decided to develop a pageant of Missouri as an appropriate way of celebrating the anniversary of the state's admission to the Union. The solution of the problem afforded opportunity for work in many courses in the normal school. In certain of the history classes the facts which should be embodied in the pageant were carefully investigated and put in order, whereupon they were turned over to the English department, which assumed the task of organizing these facts into the appropriate acts and scenes. When this task was tentatively completed, the pageant was turned over to the public-speaking department, which took the responsibility of staging it. After careful work, the various actors were selected and the preparation necessary to carry the message of the pageant to the prospective audience was begun. But the successful staging of the pageant required scenery, which it was necessary to call upon the fine-arts department to paint and arrange, costumes, which it was necessary to call upon the domestic-art department to design and make, and various other paraphernalia, which it was necessary to have planned and made by the manual-training students. So large a problem as this, by the time it was solved, had involved a large percentage of the students of the school and likewise a large number of the faculty, and had supplied genuine motive for the work done in many subjects. That the various tasks, large or small, were performed with energy and enthusiasm could not be doubted by anyone who saw the work as it progressed. It is evident, of course, that none of the problems presented required merely the reading of a few paragraphs, the next pages, or a chapter or two as a lesson. Such reading or investigating as was done was always focused definitely on an effort to find help in the solution of some problem.

Problems of this sort originating in a social situation outside of any subject of study, which afford a basis for some of the best work that is being done in public schools today, are numerous.

When children are planning an assembly exercise or a program for a parent-teachers' meeting, or when they are trying to find ways of raising money with which to buy a piece of statuary for the school, or when they are planning a lawn party for the entertainment of their classmates, many vital problems are met which afford most significant sorts of work. They go to books or magazines or encyclopedias, or to other sources for help in the solution of their problems. Under such conditions they are working at no time merely to cover the paragraphs or pages constituting the lesson assignment.

How a subject of study may be pursued upon the basis of solving the problems which appear successively in the mastery of the subject may be illustrated briefly from United States history. In this illustration no effort is made to state accurately and inclusively all the problems which would be met in covering the period of United States history chosen for illustrative purposes. The illustration is intended to show the type of problem which should be in the minds of the children as the basis for effective work on their part. The large problem as here stated would break up into smaller ones from day to day, although care should be exercised constantly to have the children feel that they are working on problems rather than finding answers to little detailed questions. I suggest the following problems covering the work in United States history up to the opening of the national period:

How the Old World Came to Find the New: This will take care of the attention usually given in texts to the unrest in Europe and to the efforts to find a more favorable route to the East.

The Attention the Old World Gave to the New after Finding It: The working out of this problem would be concerned with the discussion in the ordinary text pertaining to discoveries, explorations, and sporadic settlements.

The Resulting Conflicts from the Settlements Made in the New World: The solution of this problem will carry the work to the close of the inter-colonial wars.

The Outcome of These Conflicts: The solution of this problem will serve to center the attention of the pupils upon the English colonies, with which United States history is mainly concerned from this time on.

Why the Colonies Began to Dislike England: This is the next problem which presents itself.

The Result of the Dislike.

How the Colonies Organized Themselves for Work Following Independence.

The Weaknesses Which Appeared in Their Organization.

Why the Colonies Started a Movement for a Better Government.

The Results of Their Effort to Improve the Government.

How the New Plan of Government Started Off.

Some of the Difficulties of the New Government.

The foregoing illustration might be extended to cover the whole of American history. The object, however, is not to discuss American history or its teaching, but to illustrate the nature of the attack so that the attention of the children may be centered upon problems and their solution, rather than upon the reading and memorizing of pages and chapters. By this type of attack pages and chapters will be read, of course, but they will be read to some purpose. The pursuit of this purpose will lead to the neglect and elimination of useless, unimportant materials found upon these pages and in these chapters.

It is evident, of course, that this type of attack supplies one of the most fundamental requisites to motivation: it supplies a problem to be solved. The motive arises in pupils because of their interest in, and their anxiety for, its solution. The more vital and significant the problem to those that work upon it the greater and the more fundamental the motive for its solution. This type of attack likewise supplies the conditions requisite for training the children in good habits of study. When the children are at work upon real problems, the teacher does not have to take thought in any formal way as to the factors in study. The solution of the problem requires the gathering of data, the organization of those data, the elimination of materials which are not pertinent, the suspension of judgment, the weighing of evidence, and the drawing of a conclusion, which means the solution of the problem upon which the effort has been centered.

The economies to be realized from directing school work from this standpoint are correspondingly as great as the savings which are accomplished by a good business man who determines definitely what he wants and how to secure it before he begins to spend money. If he begins merely by the "trial-and-error" method, after considerable loss of time and great expense he may arrive,

if the process does not bankrupt him, at the same place he would have reached if he had directed his energies and expenditures more wisely from the outset. Pupils need to be so directed that their reading, investigating, and studying are focused upon a definite thing they are concerned to accomplish. Under such conditions mere reading, browsing about, and "fooling around" are reduced to the minimum. Such wasteful, ineffectual procedures are displaced by definite, careful work upon the problem under solution.